

ROUNDTABLE DISCUSSION OF THE FEDERAL
ROLE IN THE CHESAPEAKE BAY CLEANUP
PROGRAM

SUBCOMMITTEE ON GOVERNMENTAL EFFICIENCY
AND THE DISTRICT OF COLUMBIA

OF THE

COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE



AUGUST 8, 1984

Printed for the use of the Committee on Governmental Affairs

U.S. GOVERNMENT PRINTING OFFICE

42-151 O

WASHINGTON : 1985

5402-3

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ROUNDTABLE DISCUSSION OF THE FEDERAL ROLE IN THE CHESAPEAKE BAY CLEANUP PROGRAM

(The roundtable discussion was held at 10 a.m., Wednesday, August 8, 1984, in room SR-301, Russell Senate Office Building, Senator Charles McC. Mathias, Jr., chairman of the roundtable discussion, presiding. Senator John Warner of Virginia was also present. Staff present were Monica Healy, Special Assistant and Byrne Murphy, Staff Assistant.)

STATEMENT OF HON. CHARLES McC. MATHIAS, JR., SENATOR FROM THE STATE OF MARYLAND, CHAIRMAN OF THE ROUNDTABLE DISCUSSION

Senator MATHIAS. Ladies and gentlemen, in my Navy days I had a captain who used to say the bells of the boat must equal the bells of the bridge. We are not quite on time but almost. We can get started now.

We have very distinguished participants at this roundtable. From the Environmental Protection Agency we have Dr. Tudor Davies and Mr. William Horne; from the Soil Conservation Service we have Mr. Robert Shaw and Mr. Ron Lauster; from the National Oceanic and Atmospheric Administration we have Mr. William Gordon and Dr. Dean Parsons; from the Fish and Wildlife Service we have Mr. Rolf Wallenstrom and Dr. Glenn Kinser; and from the Army Corps of Engineers we have Mr. Ted Robinson and Mr. Edward Cohn.

We also have, not at the table but in the audience, a representative from the U.S. Geological Survey, the Department of Defense, and the White House Office For Policy Development.

We are very pleased to have this kind of interest shown in the Chesapeake Bay.

Ideally, Tudor, we should be on a boat.

Mr. DAVIES. Yes, Sir.

Senator MATHIAS. We should be leaving Annapolis about now with Kent Island dead ahead. We will do the best we can on dry land.

It is our purpose today to examine the present and the proposed activities of each of the Federal agencies involved in the Chesapeake Bay, not only the bay itself but the whole basin, and to see how these activities will be integrated into the Chesapeake Bay

Program and how they will be coordinated with other Federal agencies that may have some more tangential involvement in the program.

I think we have already had a banner year for the bay. President Reagan has declared his full commitment to restoring the bay, which I think is an important and significant event. The Congress has approved the administration's request for \$10 million to fund EPA's continued involvement in the bay program. The Senate has approved \$3.8 million of additional funds to enable a greater contribution from the agencies present today.

And I think, perhaps, just as significant as anything else, the States have all announced ambitious plans to reverse the long decline in the quality of the bay's water.

By allocating over \$80 million for their efforts, the States have clearly indicated that they are prepared to lead the way in this great restoration effort.

We now have the bay's pollution problems identified. We now have, at least, the initial financial commitments, so we are in a position to begin to move ahead.

All of that is hopeful and positive, but I don't think it is negative to add that we have a long way to go.

The first priority, it seems to me, must be to harness the Federal and the State resources into one controlled and directed effort. We have remarkable resources available, but if they begin to go off in slightly different directions, then the force and weight of all of that expertise will be dissipated.

The States have already begun to discuss bay initiatives within the structure of the bay program. I think there is probably a need for an increased level of communication among the Federal agencies. I think we need to do our part to ensure that each of the Federal agencies is fully coordinating and cooperating with the other Federal agencies, and that, I suppose, is the shortest way of defining why we are here today.

One excellent example of Federal coordination is the joint effort by the Department of Defense and the Environmental Protection Agency to organize their current programs to respond more adequately to the needs of the Chesapeake Bay. The Department of Defense—it might be questioned by some people as to why they are involved in the Chesapeake Bay, but it is very importantly involved. It has 50 installations, and 400,000 acres, and about 250,000 people all in the bay area, so the Department of Defense is a very big actor and can have a very major impact on the region.

The Department of Defense's commitment of resources to pollution abatement programs and land management practices can make an enormous contribution to the bay program.

I want to congratulate the Department of Defense because I can recall, over the years, various steps that have been taken, practical steps which have been extremely helpful in dealing with the bay program.

I would hope that EPA-Department of Defense joint effort could act as a catalyst for other agencies to make greater use of their resources.

I think we all recognize that restoring the Chesapeake Bay to what it once was will require a long and determined effort by ev-

everyone who uses it and by everyone who lives near it. Effective and efficient coordination of the Federal aspects of the program will be critical to our success. I think that this roundtable discussion can make a positive contribution to that goal.

Senator Paul Sarbanes was unable to attend the roundtable today but has a statement for the record, which we will insert at this point.

STATEMENT OF HON. PAUL SARBANES, U.S. SENATOR FROM THE STATE OF MARYLAND

I appreciate the opportunity to hear from the various Federal agencies who are already or soon will be playing important roles in the effort to cleanup the Chesapeake Bay. We have come a long way in documenting the condition of the Bay and in bringing about both a national and regional recognition of the importance of reversing the alarming decline in the Chesapeake Bay's ability to support life.

The commitment from the administration and from Congress to allocate \$10 million to the EPA's Chesapeake Bay Program is a major development. But the EPA alone cannot do the job. There has been an impressive degree of cooperation and commitment from the jurisdictions in the region; Maryland, Virginia, Pennsylvania, and the District of Columbia. This regional cooperation is essential and it is an integral part of the Federal/State partnership that is becoming a model for the nation. But this Federal/State partnership cannot be truly effective until there is full integration and coordination of the various agencies involved at the Federal level.

It is my observation that there is not enough integration among the various agencies involved. In an effort to prompt a greater role by agencies other than EPA, we have worked in the Senate to include increased appropriations for Bay related projects in the Department of Agriculture, the National Oceanic and Atmospheric Administration, the Corps of Engineers and the Fish and Wildlife Service. It has been apparent, for instance, that the success the Department of Agriculture has in implementing Best Management Practices to control soil erosion and runoff will have a major impact on the non-point source pollution entering the Bay. Similarly, the resource monitoring programs of the National Marine Fisheries Service and the Fish and Wildlife Service, if properly coordinated, could contribute significantly to the restoration of fish and shellfish in the Bay.

I look forward to a candid exchange of views and ideas here today. And I am confident that we will be able to rise above the tendency among agencies to pursue independent programs. While we need the initiative of individual agencies we need even more the collective expertise and cooperative effort of all the parties at the Federal level.

Senator MATHIAS. I am going to ask each agency to make a brief opening statement describing its present activities, its goals, its proposed programs in the Chesapeake Bay Water Basin. I also request that each agency describe how these activities will be inte-

grated into the whole program and how they will be coordinated with the other Federal agencies' activities.

We might start with the Environmental Protection Agency, and I will ask Tudor Davies to lead off.

**STATEMENT OF WILLIAM HORNE, DIRECTOR,
CHESAPEAKE BAY PROGRAM, ENVIRONMEN-
TAL PROTECTION AGENCY, ACCOMPANIED BY
TUDOR DAVIES, OFFICE OF WATER**

Mr. DAVIES. Inasmuch as you are going to have us enumerate the program actions, Bill Horne is going to give you the background for our proposed program for 1984 and 1985.

Mr. HORNE. As many of you probably know from the press and from other activities that we have conducted, the Chesapeake Bay Program is a Federal/State partnership dedicated to the cleanup of the bay. EPA views its role very much as a lead Federal agency, not as *the* Federal agency but as a lead Federal agency in bringing together the Federal aspects of the Chesapeake Bay Cleanup.

In carrying out the Agency responsibilities the Chesapeake Bay Liaison office provides expertise where appropriate, manages the basic funding provided by the Congress, staffs the partnership meetings at all levels, encourages and facilitates a program of public participation and information, and indeed provides the focal point for the whole array of activities dedicated to the cleanup of the bay.

Besides those activities, of course, we have an agency responsibility that comes from our law, and we carry out that mandate as well.

In December of last year the Administrator of EPA, the Governors of Maryland, Pennsylvania, and Virginia and the Mayor of the District of Columbia signed the Chesapeake Bay Agreement of 1983 creating a partnership between the States and the Federal Government. Under that agreement an Executive Council has been created. Chaired by the EPA Region III Administrator the council members are cabinet level State officials.

Below that council, the next level is an Implementation Committee. That committee has met regularly since January and moved along to the point where the partnership is now engaged in a joint planning process incorporating all aspects of Bay cleanup.

None of this has come easy. The member agencies have many different and often conflicting points of view but I am impressed that, as a body and as a partnership, we have been able to move with reasonable rapidity and harmony.

Now to consider Federal participation: I have met with representatives of the agencies here today, and with the Geological Survey. We have worked out arrangements whereby there will be a joint Federal planning activity on the Bay. We have talked arrangements whereby Federal agencies will detail people, professional staff people, for periods of time to work in the Chesapeake Bay office in Annapolis jointly planning for Federal participation.

We have had extensive discussions, of course, on not just planning but on the whole array of program activities of both Federal and State agencies.

We have a good beginning. As far as Federal relationships within the Bay Program structure, the Implementation Committee is the level where participation starts. The appropriate agencies have been invited to place members on that committee and although there hasn't been full participation thus far for a number of reasons, the situation is rapidly improving.

There is also a structure of subcommittees in the Bay Program where there is ample room for participation by the Federal agencies. In modeling, monitoring and data management there will be a need for the expertise located in the Federal agencies.

That sums up where we are on the structure so I would like to discuss program and the funding provided by the Congress. For fiscal year 1984 the EPA Chesapeake Bay Program was funded at \$4.2 million and for fiscal year 1985 we are looking forward to a funding of \$10.0 million.

As for fiscal year 1984, \$3.0 million of that money will pass to the States very shortly for project support. In fiscal year 1985, the first year that we will be able to organize that money into specific projects under hard criteria that has been developed working with the States in partnership, there will be approximately \$7.25 million of the total of \$10.0 million made available for States' projects.

It is agreed that the projects will be for primarily non-point-source control. While point source pollution control projects have been heavily supported by the Federal Government there has been a dearth of NPS funding for water quality benefits.

In addition to the \$7.25 million of grants to States approximately \$2.75 million—and this number has not as yet been agreed upon by the partnership—will support the Liaison Office and provide for programs in modeling, monitoring, data management and citizen participation.

The Bay Program has agreed upon the ground rules for development of a multi-year modeling program; a monitoring activity integrating mainstem and tributary, Federal and State agency programs under a single plan is underway; VAX 11/780 computed in Annapolis now contains what may be the largest ecosystem data base in the country which is available to all Bay Programs; and the Bay Program is continuing its commitment to public participation by devoting substantial funding and staff to a broad multi-state program.

One last point of interest—the GSA has moved very rapidly to provide new quarters in Annapolis for the Bay Program. We are very short of space which becomes critical as Federal and State agency professionals plan and implement programs in a full partnership made.

Thank you, Senator.

Senator MATHIAS. Thank you very much.

You mentioned nonpoint-source pollution. That is a good introduction to the Soil Conservation Service. In coming in this morning, I greeted them as the next heroes of the bay because they have an enormous opportunity.

**STATEMENT OF ROBERT SHAW, DIRECTOR,
LAND TREATMENT DIVISION, SOIL CONSERVA-
TION SERVICE, DEPARTMENT OF AGRICUL-
TURE, ACCOMPANIED BY RONALD LAUSTER**

Mr. SHAW. Thank you, Senator.

First, let me commend you for your efforts in supporting the activities of the bay project.

The Soil Conservation Service is interested in improving water quality and many of our activities are bent toward reducing pollution from nonpoint sources especially.

In 1982 we developed a water quality strategy for our agency, and we have a copy of that as a handout for you. The basic approach is to incorporate water quality activities within all the activities of the Soil Conservation Service.

In addition, we have recently published a water quality guide for our field offices to help them do the job of incorporating water quality considerations in all that we do.

I would like to refer to the map, if I may. First of all, we have offices in many of the counties throughout the Chesapeake Bay Basin, a rough estimate would be something over 300 SCS people located in this area, and in terms of specific projects we have funded three Rural Clean Water projects in cooperation with the Agriculture Stabilization and Conservation Service. They are shown here [indicating] in blue.

We have five major erosion control targeted areas within the basin. They are outlined here in red. We have the Mason-Dixon project here and one at the Potomac head waters and portions of projects here in Virginia and the State of New York.

The green and orange markings on the map reflect activities under our watershed projects, Public Law 566, and also Public Law 534 activities. In total there are 72 watershed projects in the basin. Thirty-seven of those have been completed, and the others are currently under construction in one stage or another.

An item that is not displayed on the map because it is very difficult is the amount of mine-land reclamation that we are doing, which also contributes some to reducing nonpoint-source pollution.

In terms of new initiatives for 1985 that were proposed in the President's budget, there is a West Chesapeake River Basin study that would include the western portion of the State of Maryland. One of the purposes of that project will be to identify those priority sources of nonpoint-source pollutants and in particular those from agriculture.

In addition, SCS State conservationists in the States have proposed other erosion control targeted areas, and of those two are in the basin, one is in this area and one is in northern Virginia, but it

is our understanding from what we have seen so far in the appropriations process that we will probably not start those two initiatives.

As for interagency coordination, we have been working with the Environmental Protection Agency on a memorandum of understanding, and it is my understanding that that is about to be completed and signed.

We are also represented on the nonpoint-source task force to assist EPA in developing a Federal nonpoint strategy. We think that is a very worthy effort.

As far as the U.S.-Canadian International Joint Commission is concerned, we have representatives on the Water Quality Board, programs committee, and the nonpoint-source subcommittee. We have been an active member of the work group that is working with the Association of State and Interstate Water Pollution Control Administrators to help with their nonpoint study, and we are assisting NACD with the nonpoint-source data collection effort.

Finally, as part of the Resources Conservation Act responsibilities for the 1985 appraisal, we are making a special effort to assess nonpoint-source pollution from agriculture, particularly in the areas of animal waste nutrients, pesticides, salinity and sediment. That effort applies, of course, not just to the Chesapeake but to all of the United States.

So, in summary SCS is very much interested in improving water quality, especially by assisting land owners to install conservation practices and contribute to the reduction of nonpoint-source pollution.

We have many activities under way in the Chesapeake Bay that contribute to this goal, and we certainly plan to continue and hopefully to accelerate some of those, and we certainly welcome the opportunity to work with other Federal agencies and would be happy to enter into memorandums of understanding or other tools that we need to further that cooperative effort.

Senator MATHIAS. Thank you.

We now go to the National Oceanic and Atmospheric Administration.

**STATEMENT OF WILLIAM GORDON, ASSISTANT
ADMINISTRATOR FOR FISHERIES, NATIONAL
OCEANIC AND ATMOSPHERIC ADMINISTRATION,
DEPARTMENT OF COMMERCE, ACCOMPANIED BY
DR. DEAN PARSONS, ACTING DIRECTOR,
OFFICE OF ESTUARINE PROGRAMS**

Mr. GORDON. The National Oceanic and Atmospheric Administration (NOAA) and particularly its fisheries arm has had a long history of involvement in the bay. Our Oxford laboratory in Oxford, MD, just recently celebrated its 22d anniversary and has long been concerned with the well being of living marine resources. The persons at that lab and those at the center headquarters in Woods Hole, have conducted much research in that area.

We have a long history, similarly, of coordination and cooperation with the States. We long ago established effective funding mechanisms through Public Law 86-309 and Public Law 89-304, and we have worked with the Atlantic States Marine Fisheries Commission in coordination of many of the activities that involve fisheries and which are important to the bay.

We welcome the opportunity to join with our Federal colleagues and, further, with the States to achieve what we all hope is something that can occur in the near future.

Some of our ongoing activities have dealt with fisheries statistics, both Maryland and Virginia. They have worked with us in the collection of the commercial and recreational landings of the fish and shellfish from the bay.

We have also worked with them on the status of living marine resources and have conducted long-term research on enhancement of oysters, blue crabs, and striped bass. We have developed models of the fishery recruitment process which describes quantitatively how fish spawn and reach maturity and are available to both recreational and commercial fisheries.

Most recently we have been deeply involved with studies of striped bass in the bay and the effects of pollutants on that very valuable resource.

One of our activities that has been going on for a long time is the assessment of the estuarine wetlands, their losses and gains. More recently we are using satellite imagery to map those losses and gains even more closely. Using that process, we are getting and making timely information available.

The oxygen depletion problem is included in our nationwide assessment of eutrophication and the linkage between these two factors. We are also involved in dissemination of this data to the users.

We have concentrated chiefly in the area of living marine resources with monitoring and research of pollutants, primarily toxic chemicals, and we will continue to measure those in the surface, the sediments, and the bivalves, and the bottom sediments.

Studies of the effects of trace metals on the development of striped bass larvae have been an important component in our work on striped bass. In an effort to carry out some of these studies computer-assisted processes have been developed.

Much of the work at Oxford has been involved with pathology: Diseases of soft clams, oysters, menhaden, striped bass, and other species.

The publication of bay assessment documents is a synoptic, holistic attempt to pull the many materials together and make them available to the public. Fisheries data is also made available through other assessment publications.

The NOAA Estuarine Sanctuary officer has established a special research site within the Rhodes River. NOAA is looking at this site as a long-term study site, possibly as a part of a larger modeling effort.

In terms of habitat protection and conservation, we have worked for a long time cooperatively with the Environmental Protection Agency, the Corps of Engineers, and the States to insure that critical habitat is protected and enhanced. We have worked towards development of fish passageways. The upriver sites where spawning at nursery areas are located are often cut off by dam building or other activities.

Of course, most recently NOAA has implemented a habitat conservation policy with increased emphasis on management and research activities in the bay and the contribution of estuarine fisheries to the ocean fisheries. We have taken a long look at the economic and social value of the Chesapeake Bay and the need to measure the non-market benefits as well as the market benefits coming from the resources of the bay.

In terms of additional studies for 1985 and beyond, we would envision working with our other colleagues in understanding the reasons for the oxygen depletion.

We would acquire and analyze and interpret data of the Chesapeake Bay data center, and this could be done using NOAA data required to supplement the present Chesapeake Bay data center and by building more and more data into it.

We would provide interpretation and analysis of available data through dissemination of information, reports, and models alike. We would pull this all together.

In terms of improving the fisheries statistics, we need to improve the quality and quantity of the commercial fisheries statistics collected under contract through the States.

We would increase and improve the intercept portion of the recreational fisheries survey to get more realistic and timely data from the recreational component, and of course provide computer capability and a link between the States and our data base to improve the accuracy and timeliness of the commercial and recreational data.

I think it would be most important to determine the short- and long-term factors affecting mortality of key commercial and recre-

ational species, including in this the fishing mortality as well as both natural and man-induced environmental mortality and to develop hazard assessment using this mortality data and data on the fate and effect of the contaminants.

Much of this data, we believe, is available, and we must work closer with our colleagues to begin to understand it and what effect it has on living marine resources.

In another area, we should document where water quality in the bay is unsuitable for growing oysters considering not only of the wellbeing of the oysters themselves but of the future and fate of those who consume oysters.

Emergency striped bass research—we would continue that and would focus on specific parts of the bay.

A word or two about the integration of NOAA research efforts with the Chesapeake Bay Program. We will be moving ahead to establish a project chief and staff within NOAA's Estuarine Program Office, which is housed in the Fisheries Service, and this will form the principal contact with the Chesapeake Bay Program. The Director of the Estuarine Program Office, we would hope, would serve on the implementation council which is already established. We would seek NOAA membership on four subcommittees: Monitoring, Research and Modeling, Data, and Planning; and also to participate in the citizen advisory committee. Rather than create new ones, we would use the existing mechanisms in a more thorough fashion.

We would hope that we would place someone in the Chesapeake Bay Liaison Office in Annapolis so that we can maintain continued communications with that office.

We would move ahead with a study plan for Chesapeake Bay and have this submitted to the implementation council for review and have it as an annual process.

If need be, we would enter into additional memorandums of understanding to formalize this and to make this a workable thing.

But certainly, we look forward to enhancing and increasing our long-term coordination and cooperation with the various Federal agencies and with the States.

Thank you, Mr. Chairman.

Senator MATHIAS. It is a pleasure to welcome Senator Warner of Virginia. He has been a major contributor to advancing the work of saving the bay. His arrival on the scene marked a turning point in cooperation among the States.

I think we will continue with our agency reports, and then we will ask Senator Warner to say a few words.

**STATEMENT OF ROLF WALLENSTROM, DEPUTY
ASSOCIATE DIRECTOR, HABITAT RESOURCES,
FISH AND WILDLIFE SERVICE, DEPARTMENT
OF THE INTERIOR, ACCOMPANIED BY DR.
GLENN KINSER, SUPERVISOR, ANNAPOLIS
FIELD OFFICE**

Mr. WALLENSTROM. Mr. Chairman and Senator Warner, the Fish and Wildlife Service has two principal activities that the Chesapeake Bay is the primary beneficiary of. We have no direct program designed for the bay singly, but the two programs in the Service that impact the bay are Habitat Resources and Fishery Resources. Habitat Resources is a program which reviews water development projects and recommends methods for preventing fish and wildlife and habitat losses as a result of those projects. We do the same thing for permit and license activities that are required along the bay.

We also have, within Habitat Resources, a national wetlands inventory which is an inventory of all the wetlands of the United States and along the bay. We have some specific stepdown projects that impact the bay only, analyzing the amount of wetlands remaining along the bay and what is happening to those wetlands.

Through our Fishery Resources program we have been involved in the emergency striped bass study. That study was earmarked to end this year and we expect that to be expanded now into 1985. That will be an ongoing activity for our Fisheries program.

In addition to that fisheries study, we have had a \$71,000 grant to the State of Maryland to study population dynamics in the harvest of shad and river herring in the Chesapeake Bay drainages.

The principal funding that the Service has amounts to about \$600,000. Most of that money is being spent in the fiscal year 1984 Habitat Resources program at our Annapolis field station. About \$600,000 was appropriated for the striped bass study under our Fisheries program, also in fiscal year 1984.

In 1985 we look forward to continuing and expanding the striped bass study. The major items that will be addressed in 1985 under that program will be field and laboratory toxicity studies, fish disease effects on striped bass population dynamics, and the effects of fish mortality on stock recruitment.

In the Habitat Resources area there is a proposal to add \$500,000 to that program. If that becomes a reality, we would expect to expand our technical assistance to Federal, State, and county agencies for planning purposes, watershed planning, that type of activity.

We would improve our coordination efforts, both in our agency and among the other agencies. We will do some field assessment

and contaminant work on impacts on wildlife in the Chesapeake Bay area and field assessment of long-term habitat changes and trends.

Thank you.

Senator MATHIAS. We will now go to the Corps of Engineers.

STATEMENT OF A. E. ROBINSON, CHIEF, CHESAPEAKE BAY STUDY BRANCH, U.S. ARMY CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY, ACCOMPANIED BY EDWARD COHN, CHIEF OF PLANNING, NORTH ATLANTIC DIVISION

Mr. ROBINSON. The Corps of Engineers has a long history of involvement and much expertise in the Chesapeake Bay efforts. One of our most recent and more important efforts is our soon-to-be-completed Chesapeake Bay Study.

In this study's existing and future conditions reports which were published in the 1970's, we identified shoreline erosion as one of the more important Chesapeake Bay-wide problems. EPA in their study also identified shoreline erosion as a critical problem.

The Fiscal Year 1985 Supplemental Appropriations bill signed by the President contains \$100,000 to start a study on bay-wide erosion. This study will address the entire shoreline of the Chesapeake Bay as well as the tributary estuaries up to the head of tide. It is part of the strong commitment being made by us for the cleanup of the Chesapeake Bay.

The shoreline erosion study will be done in two parts: a reconnaissance phase and a feasibility phase. In the reconnaissance phase, we will perform a comprehensive inventory of erosion problems and identify critically eroding areas. We will also identify the impacts of shoreline erosion, and the potential solutions to the shoreline erosion problem in these critical areas. Included will be innovative methods that are oriented toward protection of the environment, assessments of the socio-economic and environmental cost and benefits of these potential solutions, a determination of the level of interest in and support by local entities for the solutions and on identification of the Federal interest in proceeding into the detailed feasibility phase.

In the feasibility phase, we will be focusing on detailed studies of the potential solutions for those areas that were identified as critical in the reconnaissance phase. It will include recommendations for implementation where appropriate.

During the feasibility stage, we will evaluate all adverse impacts of shoreline erosion and determine the cost and benefits of reducing these impacts. These evaluations would include the conventional study of shorefront property damage or loss, impacts on maintenance, dredging of navigation channels, and solutions to those problems. Most important to the bay cleanup would be unique evaluations of the effects of erosion-induced sediments on the bay's living resources and the benefits of a reduction in turbidity through control of shoreline erosion. This is consistent with EPA's conclusion that high levels of sediment cause turbidity are contrib-

uting to the decline of submerged aquatic vegetation and benthic species.

As is normal in the Corps'-study process, the study will be coordinated with all Federal, State, and local agencies having an interest in shoreline erosion. We will attempt to keep them aware of the progress of our work, incorporate their viewpoints, ensure that we have all available information in our data base, ensure that our study is complementary to and not duplicative of other studies, and provide information that others may use in their decision-making process.

It is particularly important that we coordinate this study and the other work of the Corps of Engineers with EPA. To this end we serve on its Implementation Committee and its Research and Modeling subcommittee.

Thank you, Senator.

Senator MATHIAS. Thank you very much.

I appreciate those reports.

I think the way to proceed is that, after Senator Warner has made his statement, we will ask questions of the agencies. Then we will open things up to the number of knowledgeable and interested people in the room who will also want to ask questions.

So, I will call on Senator Warner at this time.

STATEMENT OF HON. JOHN WARNER, U.S. SENATOR FROM THE STATE OF VIRGINIA

Senator WARNER. Thank you, Mr. Chairman.

I certainly want to acknowledge that it has been you who has spearheaded this effort. Indeed, when I joined you in the Senate several years ago, we did form the first partnership between a Virginia Senator and a Maryland Senator in this cause to rehabilitate the Chesapeake Bay.

In earlier contacts between the Senators I think you told me that historically these contacts had been limited to settling the oyster wars.

We have done a 180 on that, and I think we are together in a noble cause.

Senator MATHIAS. That was a trip to Tangier Island with Governor Dalton. That was the turning point.

Senator WARNER. But again it was our trip to see the White House staff, and eventually both of us contacted the President, and the bay commitment was put in this year's Presidential message to the Congress.

This funding by the Federal Government is going to be a constant uphill battle in view of the fiscal problems facing the Nation today in terms of our projected budgetary deficits.

Senator Mathias and I and others—Senator Sarbanes and Senator Tribble—are pledged to continue to wage that fight this year and next year and for many years thereafter until this goal is reached.

The reports we have received today provide the Members of the Senate with the necessary factual data to reinforce that case in terms of the Federal budget.

Thank you, Mr. Chairman.

Senator MATHIAS. Thank you.

Senator Warner has mentioned that the Federal budget is a critical element in this whole battle because the Federal dollars are becoming more and more scarce. The keen competition for limited funds requires a justification for all of these programs. We are not just looking at the aesthetic values of the bay alone. We are looking at the economic values.

The Fish and Wildlife service, for example, has a particular economic responsibility when you consider that the oyster catch is only about one fifth of what it once was and perhaps is only a tenth or a twentieth of what it could be. The shad catch has enormously diminished. If you read the history of the bay, sturgeon was once caught there. The opportunity for the Fish and Wildlife service is enormous; its work will enhance not just the quality of life but the economic returns. That has to be part of the whole approach; there has to be a balance sheet approach, which would accompany anything that we do.

EPA operates a liaison which is explicitly for the purpose of promoting interagency coordination.

Let me ask EPA if it would be productive or perhaps you already have some informal arrangements, to have a liaison officer or staff member to work directly with you. Is there such an arrangement, a formal arrangement?

Mr. DAVIES. I think the suggestion that NOAA made that they would station staff at the liaison office is an indication of the progress that we are making in discussing this activity with the other Federal agencies. I think that this is the direction we should move in.

In doing the initial study, we actually had a Fish and Wildlife staff sited with the base program study staff, and I think this is absolutely the way that we have to go here.

Bill Horne is working toward this activity.

Senator MATHIAS. So, you would invite the assignment of a specific staff member by name?

Mr. HORNE. Absolutely, Senator.

May I add that I believe also we do need memoranda of understanding probably with each agency so there will be no question as to where we are going on the bay.

We will work toward that. I think one of the agencies mentioned that. It is something we have in mind. We will do that, undoubtedly, in the next month or two.

Senator MATHIAS. Well, I have discovered over the years that a time limit is a useful thing. Let's say over the next month or two, could we look for that on the first of October?

Mr. HORNE. Yes, sir—certainly.

Senator MATHIAS. What else do you see that is needed for increased interagency coordination? What other mechanisms?

Mr. DAVIES. I think we would encourage very strongly the other Federal agencies—

Senator MATHIAS. Tudor, let me interrupt you for a minute.

If anybody here has any objection or any contribution to make, please speak up. We want a free flow of discussion here.

Excuse me, Tudor, go right ahead.

Mr. DAVIES. I was about to say, Senator, that the mechanism of coordination that we are using for implementation of the recommendations of the study is to work directly with the States. States have the major responsibility for implementation, and we would strongly encourage the other agencies—and I think I heard it in their statements—to work within the structure that we have currently established of cooperating with the States in making decisions, designing research programs, designing implementation programs.

We believe that the other Federal agencies can work very closely with us in that program development, and that, I think, is a very important commitment that they could make to the implementation of their recommendation study.

Senator MATHIAS. I mentioned earlier the joint Department of Defense-EPA effort. Could you describe that in a little bit more detail and does that provide a model for other agencies?

Mr. HORNE. That agreement has been made. It has not as yet been signed by the principal parties, but details of the agreement have been worked out.

Actually, the Defense Department has a national program addressing pollution abatement. I am sure you are aware of that.

What this agreement brings about is a priority consideration for funding projects in the Cheasapeake Bay region. In other words, they have a program that is ongoing—the Defense Department has done a lot of work in the bay already—but by this agreement they will give priority funding to the remainder of those projects that are pending now in the defense installations of the bay. That is a very important thing for us.

Defense will also initiate an environmental self-auditing program on a pilot basis in the bay area. This is the first nationally. They will review land-use management programs to reduce nonpoint-source pollution on their facilities in the bay area, and defense will review its management practices concerning the construction of pollution abatement facilities. This would be an ongoing thing in the way they build new facilities.

As EPA's part of that agreement, EPA will work with a delegated State—because many of our responsibilities are delegated, of course, to the States for this activity—in the issuance and re-issuance of all major NPDES permits at DOD installations by September 1985. Every permit will have been reviewed and re-issued or issued by September 1985. We will also conduct an annual compliance audit inspection at each of the major DOD installations and at others that we deem significant.

We will provide technical advice and assistance to DOD on controlling non-point source. That is an area where they have really made a major effort.

As to whether this approach would be appropriate for other agencies, we have looked at the other agencies with facilities in the bay, and we don't feel that this exact approach is probably suitable or necessary. It was DOD that had the major facilities that needed this sort of an agreement, but as far as an understanding, that is another question. And, yes, we certainly need this kind of an understanding but more based on our joint participation in programs.

Senator MATHIAS. In fact, DOD was the landlord.

Mr. HORNE. That made a difference in the type of agreement but not the need for the agreement.

Mr. DAVIES. I would say that what we are looking at with DOD is actually have them implement controlled strategies on their facilities and their discharges, whereas the rest of the agencies that we have here with us today would be contributing very specifically to studies and to implementation efforts.

Mr. KINSER. We have also been working with specific DOD installations to recommend Fish and Wildlife measures that they can take and implement on their land. That has been a very successful relationship, I think—Fort Belvoir, among others.

Senator MATHIAS. Patuxent Naval Air Station?

Mr. KINSER. Patuxent Naval Air Station is very well staffed up with environmental people. We have had some minor activity with them, but it has been fairly minor. They have been doing a good job for years.

Senator WARNER. Mr. Chairman, all of us who have had experience in the Federal Government—and, indeed those in the Congress—recognize that each year various departments and agencies have to prioritize their budget submissions to the Congress. That prioritization takes place between the heads of agencies and other colleagues and then is submitted to the budget process.

Mr. Chairman, what we have got to do is to monitor that early on each year to ensure that these items that relate to the bay are given the highest priority within the departments and agencies.

I am wondering if we could task EPA in its role as sort of the omnibus agency here to inform the Chairman and myself and others of the various priorities assigned by the departments and agencies and perhaps individually or collectively we can impress upon the heads of these departments that we have a desire to see a higher priority or the highest priority maintained for these various budget submissions.

I serve on the Armed Services Committee. Quite frankly, the amounts of money that the Department of Defense contributes are relatively small in comparison with others and would not normally be highlighted by the witnesses before the Senate Armed Services Committee on an annual basis.

But if it was brought to my attention, you could rest assured that it would be given a high priority and would be fully discussed at the various hearings that we have in connection with the posture statements.

Is that a workable procedure, Mr. Chairman?

Senator MATHIAS. Let's ask the fellows who would carry the load on that.

Mr. HORNE. May I ask a question?

Senator WARNER. Certainly.

Mr. HORNE. I would wonder if this is an agency budget activity and are we talking at that level? Are we talking about the President's budget?

That would be the only question I would have—whether it is appropriate for a sister agency to get in at the agency level before the President's budget evolves.

Senator WARNER. Each year you will have to renew a request for these and other programs.

What I want to make certain is that they are given the highest priority.

Mr. HORNE. I sympathize with that, Senator, and I agree with you. We would love to have it be the highest priority.

I guess to be blunt about it, I am not sure that we can engage at agency level because it is the President's budget. Once it is the President's budget, it becomes public, so we would certainly stand to be directed; whatever you feel is appropriate.

Senator WARNER. If you can give us a little intelligence, we will know how to handle it.

Senator MATHIAS. If you deal with it in terms of program rather than raw budget, then you might be able to achieve Senator Warner's objective.

Mr. HORNE. If we were in a position to report back to you, Mr. Chairman and Senator Warner, on activities of the program on a regular basis, you would probably get what you are looking for.

Mr. KINSER. I wonder if that might be accomplished through, maybe, a yearly meeting, which we have talked about with EPA, with all the Federal agencies, rather than putting EPA in an oversight role. I think probably all the Federal agencies have concerns with the other agencies. Maybe what we could do is just provide you with the information on what the various views are rather than putting EPA in that sole position.

Senator WARNER. That might be the answer, Mr. Chairman.

If you could convene this roundtable at those critical periods—usually in September or October and November when the various departments and agencies are figuring out their budget submissions that go to the administration—then at that time we could possibly interject ourselves in a manner to ensure that this was given the highest priority.

We could then serve as the oversight.

Mr. DAVIES. I think that would put us in a very difficult spot, sir. That is considered within the agency as very privileged information until it is submitted to OMB and so on and comes out in the President's budget. I would hate——

Senator WARNER. We can work around that. It is always highly privileged, but usually the Hill knows about all the privileges. [Laughter.]

Mr. DAVIES. Yes.

Senator MATHIAS. We can talk about the programs.

Senator WARNER. We can discern the level of interest.

Senator MATHIAS. We are not trying to get anybody fired. [Laughter.]

We want you all to be secure on this job, but if we can find out where the soft points are and harden them up, then that will be good.

One other question goes to the same point. The Appropriations Committee has asked the Soil Conservation Service to assign 10 additional slots or 10 slots to the Chesapeake Bay work, and, of course, this is absolutely critical for the nonpoint-source pollution, to know more clearly what is the major problem in the bay is.

I don't know how to put this diplomatically, but are you going to assign the people or is there going to be some discussion among the agencies here as to what those Soil Conservation Service experts will do? Will there be consultation with EPA and the Soil Conservation Service? How is that skill and talent going to be employed?

Mr. SHAW. I would say that, certainly, we will be consulting with our State conservation people in the various States as probably the first order of business. As was mentioned before, we definitely support the approach of working with the States, and certainly we respect their priority-setting responsibility, and so we will continue to work closely with the conservation districts, so we would certainly work with the various States in identifying what the critical points are and what is most responsive, and we would place a great deal of effort on that.

Senator MATHIAS. Any other comments on that question? Any other agencies see a need for that?

Mr. DAVIES. We consider it very important from the EPA standpoint that the technical assistance be provided within the State systems for nonpoint-source implementation, and we want to work

very closely with Agriculture in this area, working with the States in terms of providing technical assistance and planning responses in local implementation.

This, I think, is a critical activity for Agriculture.

Mr. SHAW. I might add, Senator, that the problem with this whole job of training with the States, such as Maryland, is that they have added staff and this presents a very definite training need and we would need support in this training effort.

Senator MATHIAS. One of the objectives of the bay program, as I suggested, is to revitalize the Chesapeake Bay's living resources, and that will probably require a management plan. Is NOAA going to be the action agency in developing that plan, and how will you coordinate with the Fish and Wildlife Service?

Mr. GORDON. I see this as mostly a State responsibility. Within our relationships with the States where we have interjurisdictional species, those that range beyond more than the boundaries of one State, we have worked with the Atlantic States Marine Fisheries Commission. The commission, which dates back to the 1930's, acts as a coordinating agent and provides funds for travel and other needs. This enables committees to get together to plan for the development of fish management plans and then, in due course, to urge the States to implement those so that shared stocks of fisheries can be managed throughout the range on a uniform basis.

With the passage of the Magnuson Act in 1976, it has become critical that the States work even more closely together because many of the stocks that are harvested in the ocean grew up in the bays and inlets and the system of State-Federal cooperation has worked quite well, and we will continue to emphasize this respect.

Where it is totally intrastate, that is, within the boundaries of a single State, we certainly can provide technical experts and scientific experts to assist the States in doing what they must do. I can see a great deal of data coming from the Chesapeake Bay Study that would be useful in that respect.

Financial assistance to the States has traditionally been granted through the Commercial Fisheries Research and Development Act, Public Law 88-309, and the Anadromous Fish Act which is jointly administered between the National Marine Fisheries Service and the Fish and Wildlife Service, and there has been a coordinating committee working well with the States in this respect.

I see these mechanisms continuing to work and work quite well but with a renewed interest and emphasis on rebuilding the stocks of the Chesapeake Bay. I see it more critical that we continue to work closely together and that the States share this responsibility in a more aggressive way.

Senator MATHIAS. When you talk about action by the States, are you referring to the Chesapeake Bay Commission?

Mr. GORDON. That could certainly be the function for the Chesapeake Bay Commission.

Senator MATHIAS. They recently established a Fisheries Management Advisory Committee.

Mr. GORDON. That is correct.

We can work very closely with them.

Senator MATHIAS. How does this sit with the Fish and Wildlife Service?

Mr. WALLENSTROM. I think that is probably one of the most difficult coordination areas because of the varying roles that different State and Federal agencies have in fish management.

As you know, it probably parallels waterfowl management in that we have flyway councils that manage our waterfowl which States are members of, and the Fish and Wildlife Service is a member of.

That concept works very well. I think, maybe, something like that is in order in fishery management because we do have the problems of nobody having responsibility for the final word on any of these activities. There is a forum now to get together and arbitrate different opinions, but there is really no spokesperson to make that final decision.

Certainly the Fish and Wildlife Service does not see themselves in that role, but I think there would be an opportunity for some bay coordinating group.

Mr. GORDON. If I may, I would just add to that, Senator, the example of the striped bass. The striped bass of Chesapeake Bay origin are caught by citizens from the Canadian border southward to the Chesapeake Bay and a little bit beyond. Approximately 80 percent of the ocean fishery is attributable to the bay itself, so the actions of Maryland and Virginia, or the inactions of Maryland and Virginia, may well affect the citizens of the State of Maine as well as other States. There are a number of other species that use the bay in a similar fashion, especially a nursery grounds with the adults being harvested in the ocean. So, it is a broad and complex problem. There is no mandate within U.S. law to require the States to work together on this, if the fisheries are totally within State jurisdiction.

There is legislation pending, both before the Senate and the House, that addresses these components. Your actions there may bring a partial solution to it.

Senator MATHIAS. I think we have hit a critical point here, and it is closer to home even than the example you have given about the rock fish. I am talking about the pre-Warner days.

A crab spawned in Hampton Roads traveled north at its peril, and there was no coordination between Maryland and Virginia on any of this.

That shows you what a basic level of lack of coordination can do.

Mr. GORDON. Certainly the Chesapeake Bay Commission can and should address that, and we are prepared to work with it.

Senator MATHIAS. I sense that there is something missing here that we have not quite put our hands on.

Does EPA, as liaison, have a word?

Mr. HORNE. I believe you probably have put your finger on one of the problems that we do have.

It seems to me that where we have created a structure to look at an ecosystem management—the States and the Federal Government in concert—we must realize that it is broader than any one State and is broader than the Federal Government. It has programs at all levels, but we ought to do the best job that we can of taking all of these activities and the planning for these activities through a Federal-State structure of partnership. We ought to try

that because the whole secret in the ecosystem management is exactly that.

Somebody across the table mentioned that, indeed, we are in a period where the States are taking the major responsibilities in the management of so many of these programs. More and more, that is true of our programs, as well as the programs of other agencies.

So, it is incredibly important if we are going to bring proper expenditure to the Federal and State dollars that we have a cooperative structure where we all participate, we all attempt to do our planning together, we sit together, we cogitate together.

It doesn't mean governance. There is law bringing governance to the expenditure of money; we all know that. But in fact if we meet together, chances are we will spend that money better and bring about a cleaning up of this bay. That is what this is all about.

Mr. KINSER. The discussion going on here made me think of an article which was done not too long ago called, "The Tyranny of Small Decisions," by William Odom. In that article he mentions that there was no conscious decision to get rid of the railroads in the United States, yet it all happened by individual decision. People made the decision to ride the car or some other mode of transportation. The end product was that the railroad was disbanded effectively.

I think that what we are seeing in this system with the environment is much the same type of thing. I guess I would look at it not so much as a problem of coordination, which can be very helpful, but there are a lot of individual decisions being made on bay activities on a daily basis which are adverse to the goals that I think are shared by all of us. Yet, getting each agency and each individual to recognize that is oftentimes very difficult.

Senator MATHIAS. But if these decisions were made within the parameters of a living resources management plan or whatever you want to call it, then the decisions would tend to fall within the guidelines and move in the same direction.

But that goes back to my initial question.

Mr. GORDON. I think the problem, which is one that has eluded us for many years, is getting the States, over the broad range of the species, to act in unison for the benefit of all. There is no mandate, as the gentleman here has pointed out, for them to act in that fashion. There never has been. It has allowed individual States to regulate their citizens in their catch of fish and shellfish within their boundaries in the manner they see fit.

With a focus on the bay and the creation of the Chesapeake Bay Commission, perhaps greater interstate coordination can occur on the Chesapeake Bay. But what happens in Maine may affect what happens in the Chesapeake Bay, too, so there has to be a mechanism to bring these people together.

When it comes to dealing with a highly migratory nature of some of the species we are talking about, then we need a mechanism like that. Within the bay, I think it can work quite effectively, but for those species that range way up to Canada—striped bass, winter flounder, summer flounder and blue fish, coordination is more difficult. Even the blue crab goes out to the ocean, and the larvae end up back in the bay.

So, what happens out there, in that ocean, by citizens of other States is equally as important. We have to deal with it.

Senator MATHIAS. Can we expect that NOAA will take the lead in developing the plan?

Mr. GORDON. Certainly.

Senator MATHIAS. And stick with it?

Mr. GORDON. We may need some help to make it work from you folks in the Congress, but we certainly have given a lot of thought to it and have a plan layed out that is being addressed this fall by the Atlantic States Marine Fisheries Commission when all States are brought together.

Senator WARNER. To what extent is the bay the only spawning ground for certain species?

Mr. GORDON. It is not the only one, as I said, for striped bass. About 80 percent of the ocean-caught fish come from the Chesapeake Bay. The Hudson River provides an additional component, and there are other streams that have provided fisheries, but they tend—those fish, for whatever reason, tend to stay closer to home.

Blue fish enter the bay and leave at will. The flounders, sharks, and skates and rays, and a number of other species come and go fairly frequently from the bay; so, it is not the only place for spawning, nursery, and feeding, but it is a most important place.

Senator WARNER. Could you say it is the principal womb within which many of these species—

Mr. GORDON. Yes. Menhaden, for example, is a major component of the bay and provides the largest catch of finfish on the Atlantic Coast. It is very important fishery.

So, it is the estuary of primary importance for many species but there are other estuaries that also contribute.

Senator WARNER. You know, one of the battles that we have had to fight is that people think in terms of just Maryland, Virginia, possibly Delaware, and Pennsylvania, as the principal States responsible for the improvement and rehabilitation of the bay, but what you are telling me provides a causal chain to bring in other States and their Senators, saying that the dependence of those areas on the bay is there.

Can you draw that causal chain to other States, like Pennsylvania and New Hampshire, Maine, Massachusetts?

Mr. GORDON. Certainly.

The Fish and Wildlife Service and the National Marine Fisheries Service got together 5 years ago and mutually prepared an economic study of striped bass. From that study, we concluded that the striped bass contributed roughly \$200 million annually to the economy of the coastal areas, from Maine to North Carolina. Each State reaps the benefits, if you will, of having a strong, robust fishery whose nursery grounds are primarily within the Chesapeake Bay.

So, certainly that causal effect can be shown. If we overfish on the adults in Maine, we pay the price in future generations because there are not enough breeding populations and we will see a decline.

Senator WARNER. That would apply right up the east coast of the United States?

Mr. GORDON. Yes.

When it comes to man-induced mortality such as fishing mortality, that is certainly correct.

Senator WARNER. What role would the States play today in your Chesapeake Bay program in 1985?

Mr. GORDON. I think the States, in terms of our fisheries programs, would play a very vital role. We do not see hiring a lot more Federal employees to work; we see working with the universities and the States where there is talent and capability to do much of this work.

But we would use our talents and those of our Federal brethren to coordinate far more so that we can get compatibility of data, uniformity of collection and similar processing of data so that it is comparable, and to answer that that took place, using State resources and augmenting those through this mechanism.

Senator WARNER. There are numerous research activities that are underway in terms of the bay's living resources. Many are supported by agencies and departments outside the purview of the cleanup program, such as the National Science Foundation.

How is the knowledge that we are sharing today and other knowledge being incorporated into the bay-wide strategy for the cleanup program being brought to the attention of other agencies and departments?

I direct that to EPA and NOAA.

Mr. GORDON. We maintain, if you will, a cooperative program with the National Academy of Science and the National Science Foundation. Some of our people serve as advisors to them, and we do jointly fund studies on resource management. A member of my staff serves on that committee and acts as an advisor to them. So, that is the mechanism we see from the fisheries viewpoint.

Senator WARNER. Does the Environmental Protection Agency have a comment on that?

Mr. DAVIES. I think most of the National Science Foundation grants and programs are to universities, and most of the results are published in the open literature and given at numerous meetings. I think the scientific staff that we have mutually between us are pretty well networking to the bay research that is going on.

We are establishing a scientific advisory committee to the implementation program of the bay, which will be some of the major scientists within the bay program system, and they will provide us with the interface, then, to the ongoing research programs.

Senator WARNER. Senator Mathias asks that this question be directed to NOAA.

The Oxford Biological Laboratory at Maryland has considerable expertise in fishery diseases and pathology.

How much of that expertise has been directed towards the Chesapeake Bay Study?

Mr. GORDON. Currently very little, sir. Initially at the time the lab was built 22 years ago, the first focus was to study oysters in the Chesapeake Bay.

It has since moved away from that emphasis to look at diseases of the ocean fisheries as well as other estuaries.

We can certainly refocus, as needed, on that. Not that we have moved completely away from it; there is still a lot of talent direct-

ed toward the bay. We also have State employees who are working at Oxford.

But the fact is that we have focused more on diseases of fish from other areas because of the need to begin to understand what impact those endemic diseases often have on the management process.

That knowledge is still at Oxford and there is a tremendous body of knowledge there in their scientific documents holdings and in the talents of people who are still there. One of the people here with me today is stationed there. There is that corporate memory of where these things lie.

Senator WARNER. Thank you.

This question is directed to the Fish and Wildlife Service.

During President Reagan's recent visit to the Chesapeake Bay, he stated that the Fish and Wildlife Service was "fully behind the effort" to revitalize the bay.

Would you describe for us the programs that the Fish and Wildlife Service is currently operating in conjunction with the Chesapeake Bay Cleanup Program?

Mr. WALLENSTROM. Senator, we have two major programs. I don't know if it is appropriate to reiterate my initial statement but basically—

Senator WARNER. If you have covered it previously then—

Mr. WALLENSTROM. We did cover that.

Senator WARNER. We will then move right on to the next item.

In response to a Senate Appropriations Committee question about the Fish and Wildlife Service involvement in the bay program, the Fish and Wildlife Service feasibility statement included the proposed funding would duplicate efforts already requests as part of the President's cleanup proposal.

Which efforts would the Senate proposal duplicate?

Mr. WALLENSTROM. I don't believe I understood the question, Senator.

Senator WARNER. This is written out by the Chairman. I am not familiar with it, but he says this: "In response to the Senate Appropriations question about the Fish and Wildlife Service involvement in the bay program, the Fish and Wildlife Service's feasibility statement concluded that the proposed funding would duplicate efforts already requested as part of the President's cleanup proposal."

Which efforts would the Senate proposal duplicate?

Mr. WALLENSTROM. I would imagine, Senator, that that would be—the existing program on the bay for which we are currently funded—

Senator WARNER. Maybe staff can help us with this.

Ms. HEALY. We are talking about the requests made by the Senators from the States of Maryland and Virginia. They requested an add-on to the Interior Appropriations Bill for certain activities to be undertaken by the Fish and Wildlife Service for the bay cleanup effort. The agency responded by saying that those activities would duplicate existing work.

Senator WARNER. Would you like to answer that one for the record?

Mr. WALLENSTROM. Not really. [Laughter.]

Senator WARNER. I meant by that, would you like to reflect on those materials and then submit your written response for the record later on?

Mr. WALLENSTROM. That would be fine.

[The information referred to follows:]

Fish and Wildlife Service involvement in Chesapeake Bay issues, based upon funding currently proposed in the President's Budget, will provide for extensive efforts in response to our responsibilities pursuant to the Fish and Wildlife Coordination Act. These responsibilities include review of water resource development projects and permit and license application, and the provision of recommendations to prevent fish, wildlife, and habitat resources from being adversely impacted. The Service also maintains an active wetland inventory and mapping program in the Bay region and is working on an expanded analysis of the status and trends of Chesapeake Bay wetland habitat. The Service interacts strongly with the States of Maryland and Virginia on significant conservation issues and resource contaminant problems affecting the Bay.

Based upon the Service's present capability, active participation in the Chesapeake Bay cleanup effort will occur. Coordination of the Service's effort would be assigned to the Annapolis Ecological Services Field Station where most of the responsibility for current Bay activities is vested. Recognizing the level of current Service activity and the fact that \$10 million is proposed by the President for EPA internal activities and grants to the involved States and District of Columbia, we believe that adequate funding sources are presently available to provide for an increase in Service coordination and information transfer activities associated with the Bay.

Senator WARNER. In carrying out the Fish and Wildlife Programs in the bay region, where do you see the need for coordination with other agencies and what mechanisms need to be established to achieve that coordination?

Mr. WALLENSTROM. I think we have recognized that in the past, while we have been involved to some degree, we have not been involved enough in perhaps the watershed planning activities and local planning activities that do have a role and an impact on the Chesapeake Bay.

So, with the money that is being proposed, our top priority would be to add capability for the Service to involve themselves more in SCS-566 projects and watershed activities on the bay.

Senator WARNER. Do you intend to join the Chesapeake Bay Commission in its efforts to design and implement a bay-wide fisheries management program?

Mr. WALLENSTROM. Yes, we support that wholeheartedly.

Dr. Kinser would like to add to what I have said.

Mr. KINSER. Yes. I think there are two or three ways where we could have institutional agreements of one sort or another. I think, maybe, the one that has been mentioned is the improvement of relationships with the Soil Conservation Service, specifically in regard to channelization projects and the impact of those channelization projects.

Another would be, I think, a changing orientation within the Corps of Engineers. Although there is an existing memorandum of agreement with the Corps of Engineers dealing with Section 10 and 404 projects, this would afford us the opportunity to strengthen that agreement so that there is more say in the process from the standpoint of the Fish and Wildlife Service.

The existing process now is one where in some districts with the Corps, we will make recommendations and then the projects will be

issued over our objection, and there is no recourse to that under the current existing memorandum of agreement.

Previously under the memorandum of understanding that we had, there was a recourse that was possible, so I think that would be an improved article.

Mr. WALLENSTROM. We are attempting to renegotiate that.

Mr. GORDON. Senator, I would like to echo the sentiments of my colleague here from the Corps of Engineers. That memorandum of agreement between agencies certainly needs to be restructured if we are to be effective in doing our job.

Senator WARNER. This question is to the Army Corps of Engineers.

In your efforts to improve the bay's water quality, the EPA has recognized the need for a hydro-dynamic model of the bay, the same model that the Corps also needs for its dredging operations.

Would the Corps develop such a model to be used by both agencies if the EPA funds that development, which is undertaken for its own purposes?

Mr. ROBINSON. The need for a model is really peculiar to the particular application or problem that is going to be addressed. In many cases a model that is made up for one purpose will not serve another. We therefore, have to be careful to make sure that the model that is developed would serve the intended purposes.

One of the items that we have discussed with EPA is the possibility of developing a model that would probably be important in nearly every situation. This would be a model that would serve as the boundary conditions for some models and a driver for other models. We call it, in technical terms, a coarse grid three-dimensional model of Chesapeake Bay.

To give you an example of how this type of model might be used, let's look at the Chesapeake & Delaware Canal. Say that we want to simulate the transport of salt, pollutants, or eggs and larvae through the Chesapeake & Delaware Canal. The first step in doing that would be to establish what we call the boundary conditions. What are the salt levels in the Chesapeake Bay? How many eggs and larvae are in the Chesapeake Bay; what are the pollutants in the Chesapeake Bay?

We can do that very generally. We don't need fine detail. That is where this three-dimensional coarse grid model that I was speaking of would come into play.

The next step in addressing this problem would be to develop a more refined model of the Chesapeake & Delaware Canal and the upper bay itself. This model would be capable of simulating detailed conditions in the canal. The coarse grid model would provide the boundary conditions for this fine grid model. I should note that there are many other applications for this type of approach. We therefore believe that, at this point in time, the development of this coarse grid model is very important.

I might add that in addressing problems we should first assess whether a model is needed and second, what type of model is required. Many problems can be addressed through use of the most simplistic of models. Many of these are already on the shelf. There are, however, other problems that need the most sophisticated of models. Developing these would push the state of the art. The

coarse grid model that I have been talking about is such a model. We have had some successes in attempting to develop such a model, but it is something that has not been done yet for the Chesapeake Bay.

Senator WARNER. In response to EPA's bay report, what programs, other than shore erosion surveys, has the Army Corps of Engineers undertaken to contribute to the bay's revitalization?

Mr. ROBINSON. As I mentioned—

Senator WARNER. Have you covered this earlier?

Mr. ROBINSON. No, I did not cover that. I did mention that the Corps has had many years of experience in the Chesapeake Bay. We have a lot of expertise in both the physical and biological processes of the Chesapeake Bay, and believe that, given the money and the authority, we can make some real contributions to the Chesapeake Bay program.

In particular, we have identified two areas we feel could be addressed in the context of a study. One of them is the future disposal of dredged material, and the other is drought management.

With regard to the future disposal of dredged material, we believe that the disposal of dredged material for the next 10 to 15 years is well taken care of, both for proposed projects and for maintenance. Uncontaminated materials are being used in beneficial ways and disposal areas have been identified for contaminated materials.

For instance, Hart and Miller Island and Crany Island. It is beyond that timeframe with which we are concerned large projects already exist where we know we are going to have to do maintenance dredging. We have not yet identified how those materials will be beneficially used or disposed of beyond the next 10 or 15 years.

We would therefore propose that a study be done that would look at the entire bay in detail, assess and identify what the magnitude of the dredged material is going to be in the future and identify the best ways to dispose of that material. This would include the identification of specific sites. All of this would be done in the context of what is the most environmentally beneficial as well as what best serves the public interest.

Senator WARNER. You mentioned authorization, congressional authorization. Do you intend to request the necessary congressional authorization to address this?

Mr. ROBINSON. We believe that we already have the necessary authorization for the dredged material study. Of course, at the present time the moneys have not been allocated for the study.

There is one other study that we feel is very important. We call it drought management. EPA in its study noted that decreases in fresh water inflows to the Chesapeake Bay during droughts may be a problem. We addressed this particular problem in detail in our soon to be published Chesapeake Bay Low Fresh Water Inflow Study. We found that decreases in fresh water inflow caused by consumptive uses of water could have severe effects during droughts; particularly to the oyster. MSX spreads very rapidly as fresh water inflows decrease and salinities increase. This could cause extensive mortalities.

We also identified that these decreases in fresh water inflows and increases in salinity could have adverse effects on spawning areas and juvenile nursery areas; and clams of several types and many other bay organisms.

We therefore suggest that a drought management study be done. That would be oriented to the bays tributary basins. In this study, we would look at the water supply situation and the management of the available resources in the Basin. It would include plans for the management of existing groundwater, surface water, and reservoir storage resources as well as potential new devices that would maximize the fresh water inflow to Chesapeake Bay while at the same time serving the water supply needs of industry and the municipalities in the up basins. It would be a rather ambitious and sophisticated effort involving several types of numerical models.

I might add that we did do a study similar to this on the Potomac River Basin, as part of the Washington Metropolitan Water Supply Study. We found that a perceived problem in water supply was partially satisfied by better management of the existing water supply resources. At the same time, we were able to increase the projected flows of the Potomac into the estuary.

Senator MATHIAS. Are there questions?

Mr. ZENI. Mr. Chairman, I am Lee Zeni from the Maryland Department of Natural Resources.

There is in my mind this question of the Federal agencies that we have discussed. That has to do with not the management plans or the allocation of resources but rather management plans which would deal with the reproductive resource, and I would like to see, if possible, a memorandum of understanding that it was clear that the living resources in terms of a threshold as to whether or not these things are being coordinating, there is the money for source assessment that would not go into research in the traditional sense but rather what we would have is Level II monitoring in the EPA study, which says that there was a monitoring program that would try to determine the relationship between the improvement of water quality and the impact on living resources, and I would like to see that in their memorandum of understanding, which I think would help us all.

The other is in terms of SCS. I think in the memorandum of understanding they ought to try to target what might be the critical aquatic areas in terms of the cautionary programs and the best management practices rather than priorities based on other approaches, so I think if it would be in the memorandum of understanding, it would help in trying to get a handle on how we are working on cleaning up the bay.

Senator MATHIAS. I see there is vigorous reaction from Mr. Gordon. Do you want to comment on that?

Mr. GORDON. Simply that I have to agree with Mr. Zeni. That is exactly what I meant when I said that some of our work would involve the determination of the short and long-term factors affecting mortality of key commercial and recreational fisheries, including fishing mortality in both natural and man-induced environmental quality.

So, I have to agree entirely with him—it is a very valid point.

Senator MATHIAS. That raises the question of whether there should be a memorandum of understanding with each agency.

Would that be within the purview of the liaison activities of EPA?

Mr. HORNE. Yes, we believe it should be.

Mr. DAVIES. Yes, we do.

Senator MATHIAS. Not only should it be, but will it be?

Mr. DAVIES. You asked us to give you a commitment to have these done by the first of October.

Mr. HORNE. Right.

Senator MATHIAS. By October, right.

Mr. DAVIES. My colleague here made that commitment.

Mr. HORNE. I will have to attest to the difficulties sometimes of getting these all signed off within that length of time, but we have made a commitment, yes.

Senator MATHIAS. Are there other questions?

As you ask the questions, please identify yourselves.

Mr. CAREY. I am Bob Carey of WBOC-TV.

What is the latest status of the Empress project and also the naval bombing? Apparently environmentalists believe that should be curtailed.

Senator MATHIAS. The Corps of Engineers may have some comment. We are awaiting for an environmental impact statement on the Empress project.

Does the Corps have anything to add?

Mr. ROBINSON. I am not intimately involved with that process. I am not aware of the progress of that.

Senator MATHIAS. That's where we are right now. Mr. Robinson says that he is not personally involved.

Mr. ZENI. The environmental impact statement on—the Navy has agreed to prepare an environmental impact statement on Empress II, and that is what we have asked for.

Senator MATHIAS. That is what we are waiting for?

Mr. ZENI. Yes.

Senator MATHIAS. Until we get that impact statement, I think we are treading water.

Mr. CAREY. Was the Navy invited to attend?

Senator MATHIAS. There is a Department of Defense representative here.

Ms. HOUSLER. I am Karen Housler of the Baltimore Sun.

I have been curious about this. I wonder if someone could explain the objections raised to the channelization practice in terms of the Chester River. There is a feeling that it would directly add to the problems of sediment flowing into the bay.

I wonder if it could be explained if the environmentalists' concern is wrong.

Mr. SHAW. I am not sure I can explain why somebody is right or wrong in this case.

Certainly there is channel modification work taking place. I think it is normal that there would be interest that there would be sediment produced, but hopefully the long-term effects of that will in fact reduce the amount of sediment moving downstream. That is what is being projected in the planning process.

I have no evidence that would indicate otherwise.

Ms. HOUSLER [question inaudible].

Mr. SHAW. I am not sure.

Mr. GORDON. Yes, they are going to be doing that, to my knowledge. That was the latest street rumor, anyway.

Mr. ROBINSON. Even though I am not involved in the regulatory process, I am somewhat aware of the Corps' activities in this area.

My understanding is that for projects where the flow of the stream is less than five CFS, there is a nationwide permit that covers this type of situation. However, in the unique situation of the Chester River, our North Atlantic Division Engineer has recently placed a regional provision on this nationwide permit. We are presently in the process of preparing a public notice announcing this provision. Basically, it is our intention to require as part of the permit process a study of the impacts of the channelization in the Chester River.

Senator MATHIAS. Would that involve a public hearing?

Mr. ROBINSON. We are not sure at this time whether or not there would be a public hearing. It would require, though, intensive coordination with all Federal and State agencies. It is also our understanding that the Maryland Department of Mental Health and Hygiene is going to do a study on the effects on water quality.

ATTENDEE. Having heard everyone this morning, how coordinated do you think the effort is at the present moment to clean up the bay and what do you think, what are you going to do with all the information?

Senator MATHIAS. I think we are clearly better coordinated than we were. We need to be better coordinated than we are. [Laughter.]

I think that the pledge to get memoranda of understanding from each agency by October 1 is a major step forward that I think will help improve the situation and the cooperation among agencies.

Mr. PECK. I am Jim Peck of the Maryland Department of Natural Resources.

We are concerned about the recent SCS decision not to proceed with the land project in the Elk Basin. The Secretary of Natural Resources and the Secretary of Agriculture in Maryland and SCS have asked for consideration of that because that is a critical area. It has been targeted by SCS for technical assistance.

In the studies I have seen, almost 20 tons of soil per year is lost, and the acreage amounts to 330,000 tons of soil. That is a prime target in terms of the 566 plan treatment program.

Mr. SHAW. We understand that that has been appealed as indicated and our staff is taking another look at it in terms of whether or not we can authorize that study. That process is still taking place. We expect that decision to come forward shortly.

I would comment, though, that just because there is a high gross erosion rate that does not necessarily correlate directly with the fact that there is a high sediment delivery, and there is some disagreement in terms of just how much sediment is produced in that particular watershed even though the rates are high.

So, a lot of the discussion revolves around that.

Mr. KINSER. I think to put that in perspective, Jim, you might also add that the erosion rates on the Upper Chester are substantially less than they are in that area.

Senator MATHIAS. Any further questions?

Mr. GORDON. Senator, I sense that this is near an end for the day. If you permit, I would like to take this opportunity to present you with a book on life in the Chesapeake Bay.

Senator MATHIAS. I am very grateful.

Mr. GORDON. With your further permission, I would like to have one of the authors come up here. Bob, why don't you come up here? I am not pushing the book necessarily but Bob is on my staff at Oxford and he and his wife, on their own time, have prepared and put this book together.

Senator MATHIAS. Thank you very much. I congratulate you on your book.

My only question is: Why you left Oxford for the day? [Laughter.] Are there further questions?

ATTENDEE. The EPA liaison office has issued a list of priority research and information items. I was wondering to what extent are the other Federal agencies participating in that in terms of initiating those various research efforts.

Mr. HORNE. Yes, that list, developed through the partnership process, came out of one of the subcommittees and was passed on, of course, right up through the structure. Therefore, it is a joint Federal-State partnership with the Federal agencies participating in the process and we are certainly a party to it, if that was the question.

Our intention of moving along on it—I think that was the latter part of your question—we have very limited funding, as you know, in the Chesapeake Bay Program for research. In fact, we are really in an implementation phase, and we view those moneys mainly as implementation moneys. However, I think all the partners are committed to moving along and seeking sources of funding outside EPA, other Federal funding, foundation funding, and State funding. That list will be reviewed on a regular basis and probably changed from time to time.

Mr. BAKER. I am Will Baker, president of the Chesapeake Bay Foundation. I agree with what Lee Zeni said, which was seconded by NOAA that we ought to judge how well we are doing in our restoration of the bay by how the living aquatic resources are doing, but with regard to one species in particular, striped bass, I wonder if we are not at such a critical point that we cannot afford to wait for improved water quality measures to take effect to see that the fish come back.

I would like to ask NOAA or the Fish and Wildlife Service, either or both, whether they have any position on a proposed moratorium for the taking of striped bass in Maryland and Virginia.

Mr. GORDON. We have gone on record in testifying on some of the bills pending before Congress that the States should be given that opportunity to act first, and if they did not act, then we would reconsider action.

I personally, in correspondence with a Member of the House of Representatives, indicated that I thought that the time to act was now, but through the Atlantic States Marine Fisheries Commission. They are preparing a fisheries plan implementation by the States, and the States have pledged that they will in fact implement that plan all the way from Maine to North Carolina.

But we are prepared to wait and give the States the chance, but failing that, then we think that more positive action should be taken to achieve a fairly substantial reduction in fishing mortality.

Senator MATHIAS. This is a critical juncture. It is a situation that prevails not just in environmental matters but in political life at large where we see some problem at least in the initial purview of the States, the jurisdiction of the States. But when the answer is not to be found, and the States don't act, then the Federal Government is forced to step in.

Then you hear a cry of encroachment by the Federal Government. In fact, it is simply moving in to fill a vacuum.

So, I would issue a plea to the States that if they want to retain this jurisdiction, they have to address the problem because there are people like yourselves who will want to press for an answer. If it can't be found at the State level, then they will look elsewhere.

All too frequently, across the whole spectrum, that is what happens.

If there are no further questions, I want to thank you all for being here. I do make this observation that only EPA, as far as I know, made a budget request for Chesapeake Bay Cleanup Program activities. Now, it may be that some of the other agencies had made an original request and got shot down somewhere along the line in the bureaucratic process. I won't ask you to lift the veil of secrecy that covers the budget activities and to have you say what you had initially asked for.

Mr. HORNE. Mr. Chairman, may I make a comment if you are about to wind down?

Before you do, as the coordinator of this Federal Government activity, may I say that we appreciate very much the opportunity to be here today. I would hope that these opportunities come from time to time, once a year or whatever you deem appropriate, and I would hope that as agencies we can meet almost in this roundtable configuration in the meantime. Let's make a pledge to do that, and let us come back to you and report.

Senator MATHIAS. Well, that was going to be one of my suggestions that we meet at least once a year and maybe more often if it is necessary.

I don't think we want to meet just for the sake of meeting. We all have too many meetings to go to as it is, but I do think that this can be a beginning, and it can be an important beginning.

I, for instance, am encouraged by the fact that NOAA and U.S. Fish and Wildlife Service have made a commitment that was discussed here today on revitalization of the living resources of the bay. We identified that as one of the areas that has been inadequate in the past and needs to be strengthened, so I think that something useful does come out of this, and with your encouragement we will continue these programs.

Thank you all very much.